USAEHA

Thoughts for Food

A Food Service Information and Training Package

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Preface

As a series of reproducible fact sheets addressing the principles and practices necessary for safeguarding sanitary food service, this technical guide* (TG) provides Preventive Medicine personnel with an educational tool to provide in-house training for food-service employees. Any material directed specifically at the food-service manager is indicated.

Suggested uses for this TG include presenting a single fact sheet or a group of fact sheets to food-service managers as the "topic of the month," or just providing the managers with this guide and allowing them to create their own employee education program. Whether you choose one of the suggested uses or you develop your own ideas, the information will increase sanitation awareness in the workplace.

You may direct any questions or requests for additional technical assistance to the Sanitation and Hygiene Office at DSN 584-2488 or commercial 410-671-2488. Additional copies of the TG may be reproduced locally or obtained by submitting a DA Form 17 (Requisition for Publications and Blank Forms) to :

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**This preliminary printing of U.S. Army Environmental Hygiene Agency technical guide 188 is technically accurate and available for use by environmental health professionals worldwide. A second version, enhanced with graphics and illustrations, will be available by the end of FY 92.*

TEN SITUATIONS CONTRIBUTING TO FOODBORNE ILLNESS OUTBREAKS

Don't serve illness to your customers . . .

Ten common situations which contribute to foodborne illness are highlighted below with some examples of each situation. The fact sheets contained in this technical guide address the proper food-service practices to avoid these harmful situations.

Unsafe Food Holding Temperatures

Holding prepared, PHFs at room temperature, unsafe refrigeration temperatures (>45 °F), or unsafe hot holding temperatures (<140 °F).

***Poor* Personal Hygiene**

Failing to wash your hands before starting work, after using the toilet or after touching any soiled object; or wearing soiled aprons and outer garments.

Cross Contamination

Cutting raw foods and cooked (or ready-to-serve) foods on the same surface without sanitizing between products; or using knives, slicers, graters, choppers or grinders for more than one food product without cleaning between products.

Unsanitary Dishware, Utensils and Equipment

Cleaning and sanitizing tableware, utensils, and cutting equipment improperly; or failing to protect sanitized items from contamination.

Infected Food Handlers

Sustaining infected cuts; burns or sores; boils or pimples; sore throat; nasal discharge; or diarrhea.

Improper Food Handling

Using your hands, instead of a utensil, while preparing and serving food; or while thawing frozen food at room temperature or in warm water.

Unsafe **Cold Holding** and **Reheating of Delayed-Use Foods and** Leftovers

Slowly cooling and reheating foods; storing large masses of food in large-quantity containers; failing to reheat leftovers to safe serving temperatures (>165 °F); or reheating food in holding or warming units, such as reheating food on a steam table.

Improper **Food Storage**

Storing food uncovered on refrigerator shelves; storing raw foods directly on shelves or against refrigerator sides; or storing raw foods above or in direct contact with prepared foods.

Insects and Rodents

Failing to eliminate pest breeding or entry areas; failing to eliminate grime, spilled food and trash which attract pests and promote breeding; or failing to initiate IPM means to control pests when evidence of pests are noted.

Chemicals Stored Near Food

Storing cleaning and sanitizing compounds, solvents, pesticides and other nonfood chemicals near food; or using unlabeled containers in the kitchen or serving areas.

EMPLOYEE TRAINING, APPEARANCE, AND *HEALTH*

Employment in a food-service establishment requires strict compliance with standards governing employee training, appearance and ***health.***

Up Close On ***Personnel*** Training . . .

To work in a food-service establishment, you must be knowledgeable in --

* The principles and practices of foodborne illness prevention.

* First aid for choking.

You gain this knowledge through initial training when beginning employment, and ongoing training throughout your employment. Supervisory personnel ordinarily conduct this training, however, health-care professionals may also conduct food-service sanitation training.

Proper Attire Required . . .

To dress properly for your duties in a food-service establishment, adhere to the following:

* Wear a clean food-service uniform daily. Food service uniforms must be white, pastel or light-colored to readily show accumulations of soil or dirt. Exceptions to this rule include the following:

> Military personnel (who are detailed by daily roster to work as food service attendants and who are authorized to work on the serving line or in food preparation areas) may wear the food-service uniform specified, or light-colored aprons over their clean, duty uniforms.

> You may wear rounded-neck tee shirts as an outer garment while performing custodial duties.

* Wear a clean hair restraint (such as a hair net, or cap) which effectively prevents hair from touching food or food-contact surfaces. If your hair, including facial hair, cannot be adequately restrained you will be prohibited from food-service operations.

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* Do not wear any jewelry, While plain wedding bands are acceptable, ornate rings, bracelets, watches, and similar items collect soil and also may catch in machinery, or on sharp or hot objects.

REMEMBER
Change into and out of your food-service uniform at the worksite.

Healthful Not **Harmful . . .**

Unless cleared for duty by **a** medical authority, you cannot work in a food-service establishment (in any capacity) while --

* Infected with a disease in a communicable form that may be transmitted by food.

* Being the carrier of an organism that can cause a foodborne disease. A carrier is a person who harbors disease-causing microorganisms in their body without symptoms, such as Staphylococcus bacteria which can cause food intoxication.

* Having an infected wound, acute respiratory infection, or a boil.

Because proper supervision is important in breaking the transmission of disease from employees to the customers, the supervisor should --

* Inspect and interview all food-service personnel at the start of each work -period for signs of illness, burns, boils, cuts, skin ailments and diarrhea (admitted or suspected).

* Refer employees to a medical authority for evaluation if he/she suspects illness.

* Obtain the examining physician's written and signed statement that previously ill workers are either fit for duty as a food-service employee, or subject to duty limitations.

EMPLOYEE PRACTICES TO SAFEGUARD SANITATION

***The termination of* contamination . . .**

Protecting food from contamination requires your continuous attention to food-service techniques which involves handling food, taste-testing recipes, handling utensils and equipment, handwashing, and performing custodial duties. Always adhere to the directives outlined below to safeguard food sanitation.

About Food Handling

* Always avoid unnecessary hand contact with food.

* Wear single-service plastic food-service gloves when hand contact is necessary, such as when preparing meatloaf. (Replace gloves frequently to maintain sanitary conditions.)

* Do not serve or prepare any food product with your bare hands. Whenever possible, handle food with clean utensils, such as tongs, scoops, spoons, or forks.

About Recipe Taste-Testing

• Use only sanitized utensils to withdraw food portions to taste the recipe.

* Discard as food **waste** any uneaten portion withdrawn for taste-testing.

* Clean and sanitize utensils used for taste-testing before reuse.

About Utensil and Equipment Handling

* Grasp CLEAN and SANITIZED flatware, cups, glasses, bowls and plates by the handle, bottom, or the edge. Do not contaminate food-contact surfaces or rims of bowls, cups or **glasses** with your hands.

* Be careful when handling SOILED napkins, glasses, cups, flatware, and any other soiled utensils. Soiled articles may contaminate clean utensils and equipment, your hands and ultimately food served to the customer. **Always** wash your hands after handling any used or potentially soiled items.

About Handwashing

* Wash hands and all exposed portions of the arm as often as necessary to avoid contaminating food.

* For further information, refer to the fact sheet entitled HANDWASHING AND HANDWASHING FACILITIES.

About Custodial Duties

* Perform custodial duties (such as mopping the kitchen floor, cleaning grease hoods or grease traps) when contamination of food is least likely to occur (that is, after food preparation) and interference with service is minimal.

> Perform custodial duties towards the end of the workshift when contact with food has ceased for the day.

> Maintain a "clean-as-you-go" policy by holding each worker responsible for continuous cleaning of their own work areas. "Clean-as-you-go" does not include routine cleaning of floors, walls, or other scheduled custodial duties. It does, however, mean that you should clean spills, drippage, food particles, or food-contact surface soiling as they occur.

> Wash you hands before returning to food-service duties.

***Designated employee dining and smoking* areas . . .**

Food-service managers should separate the food preparation, storage and serving areas from areas where employees use tobacco products or consume food and beverages. This requirement ensures that food consumption and tobacco use cannot contaminate food during preparation or serving.

However, this means that you must leave the food preparation and serving areas when using tobacco products or eating. To comply with this directive --

* Consume food only in the designated employee dining area.

• Use tobacco only in the designated employee break area. requirement also prohibits you from using any form of tobacco while preparing or serving food, or when occupying food preparation areas, or areas where utensils and equipment are washed.

HANDWASHING AND HANDWASHING FACILITIES

Don't kick the ha&washing habit . . .

A high degree of personal cleanliness and good hygiene practices are absolutely essential in *a* food-service establishment. Frequent handwashing is the most important aspect of personal cleanliness. Dirty hands can contaminate food products. To avoid transmitting germs to food, wash your hands and all exposed portions of your arms --

* At the beginning of duty.

* After using the toilet facility.

* After using tobacco products.

* After performing custodial duties.

* After touching (or scratching) body parts, -such as the ears, mouth, nose, or hair.

* After using a handkerchief or tissue.

* After handling money.

* After eating.

* After handling garbage or trash.

* Between handling soiled and clean utensils and equipment.

* Between handling raw and cooked foods.

* As often as necessary.

CAUTION!
Wash your hands only in designated handwashing sinks.
DO NOT wash your hands in food preparation sinks,
or sinks used for washing equipment and utensils.

Facilities for your convenience . . .

For you to maintain proper handwashing habits, lavatories must be conveniently located --

* Throughout food preparation areas.

* Behind or adjacent to serving lines.

* Within utensil washing areas.

* Within toilet rooms.

All lavatories must contain --

* Hot and cold running water.

* Hand cleaning soap or detergent.

* Single-service paper towels. (Air hand dryers may be employed, but not as the sole means of employee hand drying.)

* Waste containers. (Use only open, 'uncovered receptacles for paper towel disposal.)

THE TIME AND TEMPERATURE PRINCIPLE

"T-n-T": The power behind safe food service . . .

TIME and TEMPERATURE are extremely important factors to remember ***when preparing, holding, and serving PHFs. Virtually all bacteria can multiply rapidly at temperatures of 45 °F - 140 °F*** (7.2 °C - 60 °C). ***This is the TEMPERATURE DANGER ZONE. If, during pxeparation, PHFs are exposed to the temperature danger zone, keep the exposure time to an absolute minimum.***

Tips On Temperature . . .

To protect food from harmful bacteria --

* Keep "cold foods" below 45 °F (7.2 °C) and whenever possible below 4C °F (4 °C).

* Keep "hot foods" above 140 °F (60 °C).

You must cook foods until all parts reach an internal temperature of at least 140 °F (60 °C). However, you must cook certain foods without interruption to reach even higher internal temperatures to eliminate the risk of heat-resistant organisms. The following table outlines these cooking temperatures:

FOOD ITEM	MINIMUM INTERNAL TEMPERATURES
Poultry, stuffed meat, and all stuffing	165 °F (74 °C)
Pork and pork products	150 °F (66 °C)
Pork and pork products IN MICROWAVE	170 °F (77 °C)
Cooked beef and roast beef*	145 °F (63 °C)

* For rare roast beef, refer to TB MED 530, paragraph 2-16.

Tips On Time . . .

Discard food exposed to the DANGER ZONE (45 °F - 140 °F) for over 3 cumulative hours.

Tips On Temperature-Taking . . .

Thermometer Selection

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Metal stem-type numerically scaled indicating or digital thermometers, accurate to +3 °F (1.7 °C) are absolutely essential to assure that PHFs reach and maintain the proper temperatures during proper cooking, holding, and refrigeration. Bimetallic thermometers are available through the federal supply system under NSN 6685-00-444-6500.

NEVER use mercury thermometers in contact with food or food-contact surfaces.

Sanitation

Remember always to sanitize product thermometers between uses.

Special Situations

Take the temperature of foods being reheated or cooled at the geometric center of the food product.

Take the temperature of foods being thawed or tempered at the surface of the food product.

HOLDING FOODS

Preparing food ahead of time . . .

You should prepare PHFs as near to their serving time as possible. However, you may prepare foods for subsequent serving periods if you chill them rapidly after cooking to an internal temperature of 45 °F (7 °C) within 4 hours. (Chill foods only according to standard procedures. Refer to the fact sheet entitled COOLING POTENTIALLY HAZARDOUS FOODS). If chilled properly, you may maintain the foods (excluding sandwiches) for --

* 36 hours at an internal temperature of 45 °F (7 °C).

* 5 days at an internal temperature of 40 °F (4 °C).

* 45 days at an internal temperature of 0 °F (-18 °C).

However, if you prepare food in advance of its serving time, you must --

* Identify the food container with a label (DA Label 177) indicating that its contents are "PRE-PREPARED" and the date and time of preparation.

* Maintain the food continually in the appropriate refrigerated/frozen food environment.

Holding Food Hot After Preparation . . .

You must maintain "hot" PHFs in hot holding units at an internal temperature of 140 °F (60 °C) prior to service. Foods transported "hot" to other facilities must comply with this temperature requirement.

To ensure that "hot" foods are maintained safely, each piece of equipment should contain a numerically-scaled indicating thermometer, which is accurate to +3 °F (1.7 °C). In addition, you must ensure that the thermometer is always located to --

* Measure the air temperature in the coolest part of the unit.

* Be easily readable. (Don't stack food on top of the thermometer.)

Where it is impractical to install thermometers on equipment (such as hot-food tables, steam tables, steam kettles, heat lamps, or insulated food transport carriers) a product thermometer is essential for you to check the internal product temperature at least before serving the food.

Holding Food Cold: Tips *for* Pte-Prepared Foods . . .

Foods prepared locally or commercially, and then offered to the customer at a food-service establishment require your care and attention. The following applies to holding various pre-prepared foods:

LOCALLY PREPARED PUDDINGS, PASTRY FILLINGS, AND "SOFT" OR "FILLED" PASTRIES

(Such as pumpkin, synthetic cream, and custard-type pies and pastries) : Unless served immediately after preparation, refrigerate promptly to a product temperature of 45 °F (7 °C) or below,

COMMERCIALLY PREPARED "SOFT" OR "FILLED" PASTRIES

(Such as pumpkin, synthetic cream, and custard-type pies and pastries) : Maintain, until sale or consumption, at a product temperature of 45 °F (7°C)or below for a maximum of 7 days after preparation.

However, if these locally or commercially prepared food items are procured frozen, you may --

* Maintain the product for the duration of the manufacturer's stated frozen shelf-life, at 0 °F (-18 °C) or below, OR

* Thaw the product under refrigeration. From the time you place the frozen product in the refrigerator, you may hold it for up to 48 hours. If the product is not consumed within 48 hours, discard as food waste. [This does not include commercially prepared items that are individually packaged, such as single or multiple portions of filled cupcakes.]

FROZEN COMMERCIALLY PREPARED BULK SANDWICH SPREADS

Thaw the spreads under refrigeration. However, once you open the container --

* You may maintain the container and unremoved contents under refrigeration for a maximum of 48 hours.

* Do not transfer contents, once removed, back into the bulk container. Portions you remove must be considered leftovers.

COMMERCIALLY PREPARED DELICATESSEN-TYPE SALADS

(Such as macaroni and potato salads, and puddings): You may hold these refrigerated items-for a maximum of 48 hours after opening the bulk container.

LEFTOVERS

Minimize t&e size . . .

Use small batch preparation, progressive cooking, and knowledge of diner preferences to keep leftovers to a ***minimum!***

To Save . . .

Before you retain foods **as** leftovers, they must meet the following criteria. Food must --

* Be maintained at a safe temperature during preparation, holding, and service.

* Be protected against contamination during service by use of sneezeguards.

* Be served by an authorized individual using the proper utensils, or be individually wrapped or packaged, such as single-service condiments and crackers.

Hard skinned fruits require washing before re-service.

Or Not To Save . . .

Although foods may meet the above criteria to be retained as leftovers, some of these foods are unfit for re-serving. DO NOT retain the following items as leftovers --

* Foods which have been creamed or handled considerably (such as hashes, creamed meats, and most gravies and dressings).

* Highly perishable foods (such as most seafood).

LIMITATIONS **ON** ***LEFTOVERS*** **. . .**

In addition to ***meeting criteria for retention as a leftover, there are several stipulations and limitations for holding, preparing, and serving leftovers. Your responsibilities are outlined on the flip side of this*** fact ***sheet.***

Stipulation for Labeling

Label leftover PHFs with DA Label 178 (LEFTOVER - Use Within 24 Hours) showing the date and time it was removed from service.

Limits on Retention

Retain PHF leftovers for no more than --

- 24 hours if they are chilled (45 °F (7 °C) or below). The fact sheet entitled COOLING POTENTIALLY HAZARDOUS FOODS contains additional guidance.

* 5 hours if they are maintained hot (140 °F (60 °C) or above). For further information, refer to the fact sheet entitled HOLDING FOODS.

Limits on Reheating

Reheat chilled leftovers intended for reservice to an internal product temperature of 165 °F.

Limits On the Number *of* Servings

You may offer a leftover to customers only once. Discard any food product remaining after that serving period.

AN IMPORTANT NOTE ABOUT LEFTOVERS:
Never freeze leftovers!

SANDWICHES

Sandwich selections . . .

Due to the nature of their fillings and the potential for contamination during prepaxation, sandwiches are PHFs.

These PHFs are classified into two categories: made-to-order sandwiches and pre-prepared sandwiches. Made-to-order sandwiches are those prepared for an individual customer **for immediate** consumption. Pre-prepared sandwiches are not prepared immediately prior to serving, such as those served from mobile food units or vending operations.

The Makings of Made-To-Order Sandwiches . . .

FOR SANDWICHES INTENDED TO BE EATEN COLD:
Prepare these sandwiches from chilled ingredients (that is, 45 °F or below). However, you may allow certain fillings and dressings to maintain product temperatures **of** 50 °F - 60 °F (10 °C - 20 °C) to allow easy spreading.

FOR SANDWICHES INTENDED TO BE EATEN HOT:
Prepare these sandwiches from hot ingredients (140 °F (60 °C) or above) and hold them at this temperature, or prepare them from chilled ingredients and heat rapidly to 140 °F (60 °C) prior to serving.

MADE-TO-ORDER SANDWICHES . . . MADE AHEAD:
In a mass feeding operation, such **as** a dining facility, you may batch prepare made-to-order sandwiches up to 1 hour prior to service, but you must maintain them at a safe temperature **and** protect them from contamination.

The Holding Zone . . .

Once you prepare made-to-order sandwiches --

* Discard them after 3 hours.

* Do not hold as leftovers.

The Production of Pre-Prepared Sandwiches . . .

For all pre-prepared sandwiches --

* Prepare sandwiches only in preparation **areas and/or** ingredient rooms specifically for mass production.

* Wrap sandwiches individually.

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* Label (DA Label 177, Preprepared Food), mark or stamp **each** sandwich with the preparation date/time in the **24-hours** system.

* Do not use leftovers to prepare sandwiches.

* Do not place condiments in direct contact with the sandwich ingredient.

* Do not rework, rewrap, re-mark, relabel, or otherwise treat sandwiches to extend shelf life.

***PRE-PREPARED** SANDWICHES: **3 TYPES . . . 3 PREPARATION** TECHNIQUES...*

Specific requirements for the preparation and holding of pre-prepared sandwiches depend on the sandwich type: hot, frozen, or chilled.

For sandwiches held HOT until consumed:

* Maintain hot sandwiches, such as reubens and hamburgers, at 140 °F or above.

* Prepare hot sandwiches from either hot ingredients, or heat rapidly after preparation to required temperatures.

* Hold hot sandwiches no longer than 5 hours after preparation. Discard sandwiches as food waste after 5 hours have elapsed.

For FROZEN sandwiches:

* Prepare sandwiches for freezing with only the bread, meat, or cheese portions.

* Blast freeze the sandwiches.

* Maintain frozen sandwiches at 0 °F (-18 °C) during transport, storage, and serving. If this requirement is not met, or if placed in vending machines then classify these sandwiches as "chilled."

* Use commercially frozen sandwiches within the manufacturer's stated shelf life.

* Do not refreeze tempered or defrosted sandwiches.

For CHILLED sandwiches:

* Prepare sandwiches from chilled (45 °F (7 °C) or below) or frozen fillings. However, you may allow peanut butter, cheese spreads, and similar ingredients to maintain higher temperatures for easy spreading.

* Acidify meat, chicken, tuna, eggs, and other similar high protein salad fillings used in pre-prepared chilled sandwiches to pH 4.5 or below. (The sandwich producer/manufacturer must provide laboratory results from the ingredient manufacturer documenting that ingredients comply with this requirement.)

* Keep chilled sandwiches at a product temperature of 45 °F (7 °C) or below during storage, transport, and service. Discard sandwiches which exceed this temperature.

* Hold chilled sandwiches no longer than 60 hours after production,

* Do not freeze chilled sandwiches.

DISPENSING MILK AND CREAM, CONDIMENTS, AND ICE

Dispensing directives . . .

Milk and Cream Dispensing

Offer MILK and MILK PRODUCTS to the customer in --

* An unopened, commercially-filled package not exceeding 1 pint in capacity, OR

* A commercially-filled container stored in a mechanically refrigerated, self-service, bulk milk dispenser. (If a bulk milk dispenser is unavailable, the IMA may authorize the use of commercially-filled containers not exceeding 1/2 gallon (2 liters) in capacity as an emergency measure.)

Offer CREAM and CREAM PRODUCTS to the customer in --

* An individual single service container.

* A protected pour-type pitcher.

* A refrigerated dispenser for the customer's self service.

Offer MILK for carry-out service in individual cartons.

A NOTE ABOUT BULK MILK DISPENSING
Always cut milk dispensing tubes diagonally, approximately 1/2 inch (1.5 cm) from the cutoff.

Dispensing Condiments

FOR A SMORGASBORD OR SALAD BAR
Offer condiments, seasonings, and dressings in individual packages, self-service dispensers, or protected containers.

FOR TABLE OR COUNTER SERVICE
Offer condiments, seasonings, and dressings in individually portioned containers. However, there are some exceptions to this requirement. You may serve --

* Catsup, mustard, steak and other sauces in the original, covered, pour-type container or other NSF International approved dispenser.

* Sugar, salt, or pepper in- individual packages or in a pour-type dispenser.

FOR OUTDOOR USE
Serve condiments, seasonings, and dressings in single-service packages only.

Dispensing Ice

Offer ice to the customer --

* By dispensing ice with scoops, tongs, or other ice-dispensing utensils.
* Through automatic, self-service, ice-dispensing equipment.

Do not use glassware to scoop ice from bins!

Store ice-dispensing utensils between uses where they are protected from contamination, such as --

* On a clean, protected, dry surface.
* In a continuous flowing dipper well.
* In an approved, clean, sanitizing solution.
* In the ice, PROVIDED the handle protrudes out of the ice.

A NOTE ABOUT ICE STORAGE BINS
Ice storage bins in a food-se-ice establishment must be self-draining with an indirect waste connection, such as an air gap between the drain line and the floor drain.

***The toolaof the* trade. . .**

When dispensing any food product for the customer, always use suitable utensils to avoid unnecessary manual contact and contamination. In self-service situations, always provide the proper utensils for the customer's use.

Between uses during service, store utensils --

* In the food container with the handle extended well out of the food, OR
* Where they remain clean, dry and protected from contamination, OR
* In a continuous, flowing water-dipper well.

COOLING **POTENTIALLY HAZARDOUS** FOODS

The rules of cooling . . .

Cool foods requiring refrigeration after preparation to an internal temperature of 45 °F (7 °C) or below within 4 hours. Rapid cooling brings product temperatures to 70 °F (21 °C) within 2 hours. Use one of the following rapid cooling methods when cooling PHFs:

* Place the food container in an ice bath and stir the food (mechanically or manually) every 20 to 30 minutes.

* Portion food in shallow pans (3 inches (7.6 cm) or less) or small containers (2 gallons or less).

* Circulate cold water in a steam jacket of kettles (where feasible),

* Store and stir food for a short time in a walk-in freezer.

* Immerse the cooking container in cold, running water while stirring the food.

* Spread sliced or layered solid items in shallow pans, and then refrigerate.

* Distribute the food among several refrigerators.

During all handling, protect food from contamination with an appropriate cover. Cover hot food to preclude any insulating dead space that would slow cooling.

THAWING POTENTIALLY HAZARDOUS FOODS

Beware of bacteria . . .

Freezing does not kill bacteria, but only prevents it from multiplying. Bacteria that exists on food products prior to freezing can multiply once the food product begins to thaw.

To prevent bacteria from multiplying . . .

* Keep thawed food products out of the temperature danger zone [45 °F - 140 °F (7.2 °C - 60 °C)].

* Never thaw food at room temperature.

The laws of thawing. . .

Thaw frozen foods --

* Under refrigeration at temperatures of 40 °F or below. However, units specifically designated for thawing are required to maintain an internal air temperature of less than 45 °F.

* During the cooking process. Place roasts and frozen vegetables (except corn on the cob) in the oven or on the stove directly from the freezer. However, this process increases the cooking time.

* In a microwave oven, only --

> When you transfer food immediately to conventional cooking facilities as part of a continuous cooking process, or

> If you cook the food in the microwave without interruption.

* In designated tempering units.

* Under potable running water for no more than 2 hours at water temperatures of 70 °F (21.1 °C) or below. For this thawing process --

> Place frozen food in a sanitized pot or other container and allow water to overflow into a sink.

> Ensure the water retains a sufficient velocity to loosen any food particles and wash them into the overflow.

> Sanitize all surfaces of sinks, equipment, and utensils used in tempering poultry immediately. This will minimize the risk of cross-contamination.

REQUIREMENTS FOR FOOD DISPLAY

Food on display . . .

Protect displayed, open food or drink against consumer contamination with easily cleanable counter-protector devices, cabinets, display cases, containers, sneeze guards, or other NSF approved protective equipment. This equipment must effectively intercept a direct line between the consumer's mouth and the displayed food. In addition, --

* Check product temperature frequently during display.

* Prohibit wet display.

* Prohibit wrapped sandwiches from directly contacting ice.

About Food Display Cases . . .

Every food-service establishment must possess enough refrigerated and heated display cases to maintain foods at their required temperatures.

* Refrigerated display **cases** must maintain an internal product temperature below 45 °F (7 °C). These display cases must contain an easily readable, numerically scaled thermometer accurate to + 3 °F (1.7 °C).

* Heated display cases must maintain a product temperature above 140 °F (60 °C).

CANNED FOOD

Conserving canned food . . .

Proper temperature and humidity are critical for the safe storage of canned food. Temperatures of 50 °F - 70 °F (10.0°C - 21.1 °C) and a relative humidity of 50% - 60% provide suitable Storage conditions. Higher temperatures are likely to accelerate bacterial action and food deterioration, and excessive moisture may cause the cans to rust.

The can can tell who's spoiled rotten . . .

Appropriate storage conditions may not guarantee that the canned food is safe for consumption. The appearance of a can actually indicates the condition of its contents.

Before you open a can, inspect it for any deformity or abnormality. While normal cans have sunken ends, defective cans may appear as --

* "The Leaker," which allows air to enter, or contents to leak.

* "The Sweller," which swells at the sides and ends.

* "The Bulger," which bulges at one end.

* "The Ruster," which may have penetrating rust, especially at a seam.

Inspect, detect, and reject defective cans . . .

Do not serve food to customers from a defective can, unless it passes the inspection of a qualified person from the veterinary inspection office.

Give it the White glove" test . . .

After inspecting the can carefully, wipe the can with a clean cloth before opening it. This prevents external dirt from contaminating the contents.

DRY FOOD STORAGE

The main course to ***dry food storage . . .***

Store food in specially designed and designated storage areas to ensure that it remains safe for consumption. Storage areas should be constructed --

* Of easy-to-clean materials

> Floors should be painted, composed of sealed concrete, or covered with quarry tile. Wood floors are too difficult to clean and keep free of pests. Improperly installed asphalt may crack under heavy loads, creating hiding places for insects.

> Coat walls with epoxy or enamel paint, or cover walls with glazed tile.

> Construct shelving and tabletops of easily moveable, corrosion-resistant metals. Slatted shelves also improve air circulation.

* With adequate ventilation.

* To maintain temperatures of 50 °F - 70 °F (10 °C - 21.1 °C) and a relative humidity of 50% - 60%.

• With adequate lighting. However, the storage area should protect food from bright light and direct sunlight.

* To discourage pest entry or harborage.

A **Side** Dish of Staff Support . . .

In addition to proper construction and design, you play an essential role in maintaining the storage area and protecting food against contamination from pests, flooding and dampness, overhead leakage, and dust. The following directives will help you in your role:

• Store food products at least 6 inches above the floor on shelves, racks, dollies, or other easily cleanable surface.

* Keep food away from the wall. This discourages pest harborage and eases cleaning.

* Place heavy packages.on lower shelves.

* Place the most frequently needed items on lower shelves, near the entrance.

• Date all merchandise and rotate inventory on a first-in first-out basis.

* Do not store food products under sewer, steam, water, or ventilation pipes. This requirement does not include fire protection sprinkler heads.

* Store bulk food, such as cooking oil, syrup, salt, sugar and flour in the original product package or container whenever possible. If you transfer bulk foods to another container, label the container with the common name of the food. Store bulk foods, such as flour and sugar, in tightly covered corrosion-resistant metal cans lined with disposal food grade plastic. Do not use galvanized metal cans to store wet food or beverages.

* Do not store garbage in the food storage area, or anywhere food is present.

* Do not use tobacco products in the storage area.

* Schedule cleaning of the storage area at regular intervals. Cleaning should include sweeping and scrubbing the floor, and scrubbing the ceiling, walls, shelves, light fixtures and racks.

Always Test for Freshness . . .

Inspect food packages upon delivery. Look for defects in shape, signs of insect infestation, excess moisture or grease, odd color and odors to determine if food products are fit for consumption. If food products appear infested or unfit for consumption, make a notation on the invoices. Do not discard or destroy the food unless authorized by the veterinary food inspector.

REFRIGERATED FOOD STORAGE

Keeping it cool . . .

All food products are not created equal. Therefore, you must preserve different foods at different temperatures. Some recommended internal temperatures for food products are . . .

Meat & Poultry	32 °F - 36 °F	(0 °C - 2.2 °C)
Seafood	30 °F - 34 °F	(-1.1 °C - 1.1 °C)
Dairy	38 °F - 40 °F	(3.3 °C - 4.4 °C)

However, food products under refrigeration require your special care. Follow the requirements below for maintaining foods under refrigeration.

The Dos . . .

* Date all merchandise upon receipt, and rotate food inventory on a first-in first-out basis.

* Strategically place large pieces of meat and all foods to allow circulation of cool air on all surfaces.

* Locate dairy products separately from other food products to prevent odor absorption.

* Place cooked foods and products removed from their original -container in a clean, sanitized, covered and labeled container.

* Check fruits and vegetables daily for spoilage.

* Always store the most hazardous foods below the least hazardous foods. This prevents contamination from products such as raw chicken blood from dripping onto products such as lettuce which is eaten raw.

* Place a numerically scaled thermometer, accurate to +3 °F, in the warmest part of the refrigeration unit.

* Stack and space items to allow proper air circulation.

The **Don'ts** . . .

* Do not store packaged food in contact with water or undrained ice.

* Do not store food directly on the floor of the refrigeration unit.

* Do not store food uncovered.

* Do not line shelves because it prevents air circulation.

The administrative duties fox food-service managers . . .

Administrative duties are also essential to ensure efficiency of the refrigerator --

* Place a temperature recording chart on each cooling unit and record a representative internal PHF temperature twice daily at 8-hour intervals to document the lowest expected temperature.

* Schedule cleaning of the refrigeration unit at regular intervals.

* Establish a preventive maintenance program for refrigeration equipment to ensure the correct operation and temperature of the units.

FROZEN FOOD STORAGE

The cold, hard facts . . .

Frozen food requires your special care and attention to keep food from spoiling. Adhere to the following for maintaining frozen food:

* Date all merchandise upon receipt and rotate inventory on a first-in first-out basis.

* Promptly store frozen foods at a temperature of 0 °F (-18 °C) or below.

* Cover all food containers.

* Wrap all food well to prevent freezer burn.

* Plan your tasks within the freezer before opening or entering to reduce the loss of cold air.

The freezer pleaser: cleaning and defrosting . . .

To maximize freezer efficiency and maintain a clean food-service establishment --

* Keep the freezer shelves and floor clear at all times.

* Defrost the freezer as necessary to eliminate excessive frost build-up. (Ice build-up should not exceed 1/4 inch!) However, plan carefully before defrosting . . .

> Defrost when the least possible amount of food is in the freezer unit.

> Remove contents to another freezer to permit thorough cleaning and to keep contents dry.

Administrative duties for food-service managers . . .

Administrative actions are also essential to ensure freezer efficiency . . .

* Place a temperature recording chart on each cooling unit and record an internal product temperature twice daily at 8-hour intervals,

* Establish a routine preventive maintenance program for freezer equipment to ensure the correct operation and unit temperature.

STORAGE OF POISONOUS AND TOXIC XATERIALS

Proof of purpose required . . .

Only those poisonous and toxic materials (PTMs) normally required 'to maintain the sanitary condition of the establishment and its equipment and utensils are permitted in any area of the food-service establishment. You must --

* Retain PTMs in their original container. However, you may divide bulk detergents, sanitizers, and related cleaning or drying agents into smaller containers.

* Label PTM containers prominently and distinctively for easy identification.

* Use PTMs only according to label instructions.

* Locate PTMs during use within the establishment where accidental spills will not contaminate food, during use. For example, DO NOT place PTMs above food, food equipment, utensils, or single-service articles. However, this requirement does not prohibit the convenient availability of detergents or sanitizers at utensil or dishwashing stations.

• Store PTMs when not in use in a locked cabinet labeled with the words "Hazardous Material Storage."

Insecticides excluded . . .

DO NOT store or use chemical pesticides in a food-service establishment. Only certified and authorized individuals may apply pesticides in a food-service establishment.

A NOTE ABOUT PERSONAL MEDICATIONS
DO NOT store personal medications in food storage, preparation, or service areas.

MANUAL DISHWASHING

The manual washing, rinsing, and sanitizing of utensils and equipment require a three-compartment sink, and your constant attention to maintain sanitary conditions.

The Pre-Wash Policy . . .

Before washing utensils and equipment --

* Clean sinks thoroughly.

* Flush or scrape soiled articles to remove resistent food particles.

* Soak equipment and utensils, when necessary.

The Three "Cs" of Manual Dishwashing . . .

In the 1 st ***Sink Compartment --***

Wash equipment and utensils thoroughly with hot (110 °F - 120 °F or 43 °C - 49 °C), clean detergent solution.

In the 2nd Sink Compartment --

Rinse equipment and utensils free of detergent and abrasives with hot (120 °F - 140 °F or 49 °C - 60 °C), clean water.

In the 3rd Sink Compartment --

Sanitize the food-contact surfaces of all equipment and utensils using one of the following methods:

* Immersion for at least 1/2 minute in clean, hot water at a temperature of at least 170 °F (77 °C). This method requires . . .

> An integral heating device or fixture installed in, on, or under the sanitizing compartment of the sink, capable of maintaining the water at a temperature of at least 170 °F (77 °C).

> A numerically scaled indicating thermometer accurate to + 3 °F (1.7 °C).

> Dish baskets of such size and design to permit complete immersion of the tableware; kitchenware, and equipment in the hot water.

* Immersion for at least 1 minute in a clean solution containing at least 50 ppm of available chlorine* as hypochlorite at a temperature of at least 75 °F (24 °C), but not more than 110 °F (43 °C).

* Immersion for at **least** 1 minute in a clean solution containing at least 12.5 ppm of available iodine at a temperature of at least 75 °F (24 °C), but not exceeding 110 °F (43 °C).

* Immersion in a clean solution containing any other Installation Medical Authority approved chemical sanitizing agent used according to manufacturer's label instructions.

REMEMBER!
Use chemicals in the above sanitation methods according to the instructions on the package label. You must also measure the parts per million (ppm) concentration of the solution with **a** test kit.

Cleaning Large *or* **Fixed Equipment . . .**

If equipment is too large for the-sink compartment, or if equipment is fixed in the establishment, adhere to the following procedures:

• Treat equipment with additive-free steam which is confined to ensure that the steam used on equipment is at least 200 °F.

* Clean, rinse, and finally spray or swab equipment with a chemical sanitizing solution of at least twice the strength as that required for sanitation by immersion.

Drying directives . . .

After sanitizing, allow all equipment and utensils to air dry completely. Do not use dish towels!

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* One tablespoon of household-type chlorine bleach (such as Clorox or Purex) in 4 gallons of **water provides a starting** solution of approximately 50 ppm available chlorine.

MECHANICAL WAREWASHING

Sanitation guaranteed . . .

The mechanical cleaning and **sanitizing** ***of equipment, utensils, tableware, and flatware*** involves ***much more than pressing*** the ***"ON" button of the dishwasher. The success of the mechanical cleaning and sanitizing operation depends on your compliance with*** sanitary ***standards-of-practice. Even the machine used in the operation must meet special requirements (refer to the*** **fact** ***sheet entitled REQUIREMENTS FOR DISHWASHING MACHINES).***

To Maintain Sanitary Conditions . . .

* Before loading the dishwasher,

> Flush or scrape soiled equipment, utensils, tableware, and flatware to remove excess food and soil.

> When necessary, **soak** items to remove resistent food particles and soil (unless a prewash cycle is part of the dishwashing operation).

* Arrange the placement of items on rack or trays, in baskets, or on conveyors to permit --

> Detergent wash and rinse waters to reach all food-contact surfaces.

> Free draining.

The M-cycle Path to Washing Flatware . . .

Washing flatware in **a** dishwasher is a two-step operation which includes a full-wash cycle and a rinse-only cycle. Both of these operations require your attention to operational standards to guarantee sanitation.

Preparing for the Wash Cycle

Wash water must reach all surfaces of each piece of flatware to maximize the machine's sanitation effect. To ensure thorough washing --

* Scatter flatware loosely on cutlery racks. Do not crowd flatware.

* Separate like pieces of flatware, especially spoons, to prevent them from meeting and obstructing the water.

Preparing for the Rinse Cycle

After the completion of the wash cycle, allow flatware to cool (until it is cool enough to touch), and then immediately prepare flatware for the rinse cycle according to the following:

* Place like pieces of flatware, eating surfaces upward, in clean flatware cylinders. Do not crowd the flatware.

• Place flatware cylinders on cutlery racks inside the dishwasher.

* Operate the dishwasher through the rinse cycle only to resanitize the flatware.

Removing the Flatware from the Dishwasher

After the rinse cycle is complete, transfer flatware to another cylinder by inverting the flatware from one cylinder to another so that the eating surfaces face downward. Remove flatware pieces from the cylinder by their handles. Do not touch the eating surfaces!

For further information on mechanical cleaning and sanitizing, refer to MIL-HDBK-740.

REQUIREMENTS FOR DISHWASHING MACHINES

Dishwashing machines used for cleaning and sanitizing equipment, utensils, tableware, or flatware ***must meet stringent requirements for use in a food-service establishment. Requirements for specific types of machines are outlined below.***

Machines Using Hot Water for Sanitization

* The machine must --

> Supply and maintain clean wash and rinse water.

> Maintain water temperatures according to the following table:

Machine Type	Temperature Wash	Final Rinse	Pumped Rinse
Single tank, stationary rack, dual temperature	150 °F 66 °C	180-195 °F 83-91 °C	-- --
Single tank, stationary rack, single temperature	165 °F 74 °C	165 °F 74 °C	-- --
Single tank,' conveyor dishwashing, pot and pan	160 °F 72 °C	180-195 °F 83-91 °C	-- --
Multi-tank, conveyor dishwashing, pot and pan	150 °F 66 °C	180-195 °F 83-91 °C	160 °F 72 °C
Single tank, pot, pan, and utensil washing	140 °F 60 °C	180-195 °F 83-91 °C	-- --

Machines Using Chemicals for Sanitization

* The machine must --

> Supply and maintain clean water and maintain water temperatures of 120 °F (49 °C) or above.

> Dispense the sanitization chemicals automatically.

> Contain an alarm system to indicate when the automatic feed of chemicals is interrupted.

* Use of this type of machine requires --

> The testing of the sanitizing solution's concentration in parts per million (ppm), at least once per shift, with a test kit or other accurate measuring device.

> Compliance with the manufacturer's specifications for duration and concentration of the final chemical sanitizing rinse.

Other Essentials . . .

The most important factors of the final rinse cycle are an adequate rinse temperature and chemical concentration at the dish surface. Measure these by placing heat sensitive labels and chemical test strips on representative dish surfaces or running a maximum registering thermometer through the dishwasher. Note that many maximum registering thermometers contain mercury and if broken, contaminate dishware and the dishwasher.

Thermometers

Machine or water line-mounted thermometers are essential to indicate the temperature of --

* The water in each tank of the machine.

* The water for the final rinse as it enters the manifold.

Drainboards

Drainboards of adequate 'size and location are essential for the proper handling of soiled items prior to washing and for drying cleaned utensils following sanitization.

CLEANING FREQUENCY

***Cleaning* is *continuous* . . .**

Keep equipment, utensils, and the entire food-service establishment clean and sanitary at all times. The following outlines the minimum guidelines for the cleaning of various items:

Tableware
Wash, rinse, and sanitize after each use.

Kitchenware, **Utensils, and Food-Contact Surfaces of Equipment**
Wash, rinse and sanitize after each use, and following any interruption of operation when contamination may occur. (Significant items include cutting boards, knives, slicers, mixers, grinders, food-preparation sinks, and frozen dessert machines.)

Equipment and Utensils Used Continuously or in a Production-Line Operation
Wash, rinse, and sanitize at intervals throughout the work period.

Equipment and Utensils Which Touch Raw Food Products
Clean and sanitize thoroughly before these items touch other food.

Food-Contact Surfaces of Grills, Griddles, and Similar Cooking Devices*
Clean at least once per operating shift. (Food-contact surfaces must be free of encrusted grease, food debris, and other accumulated soil.)

Deep Fat Fryers
Drain, strain fat, and wipe internal and external surfaces clean of soil and debris at the end of each **day's** use. Keep covered with a tight fitting lid when not in use.

Nonfood-Contact Surfaces *of* Equipment
Clean as often as necessary to maintain free of dust, dirt, food particles, and other debris accumulations.

Establishment Floors and Walls
Clean daily when the least amount of food is exposed (such as after closing or between meals. This requirement excludes the cleanup of spills which you must clean immediately.

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* This requirement does not apply to equipment protected from contamination, which is not used or otherwise soiled.

All Surfaces of the Establishment, Attached Equipment, and Decorative Materials
Keep clean at all times.

To ensure that the food-service establishment is clean and sanitary at all times, the supervisor should prepare and use a cleaning schedule, similar to the one below, to designate cleaning responsibilities.

MASTER CLEANING SCHEDULE

Item	When	What	What to Use	Who
Floors	As soon as possible	Wipe up spills	Cloth, mop & bucket, broom and dustpan	
	Once per shift, between rushes	Damp mop	Mop, bucket	
	Weekly (Thurs. p.m.)	scrub	Brushes, bucket, detergent (brand)	
	January, June	Strip, reseal	See procedure	
Walls & Ceilings	As soon as possible	Wipe up splashes	Clean cloth, detergent (brand)	
	February, August	Wash walls		Contracted Specialist
Uork Tables	Between uses & at end of day	Clean & sanitize tops	See cleaning procedure for each table	
	Weekly (Sat. p-m.)	Empty, clean & sanitize drawers, clean frame shelf	See cleaning procedure for each table	
Hoods & Filters	When necessary	Empty grease traps	Container for grease	
	Daily, closing	Clean inside & out	See cleaning procedure	
	Weekly (Wed. p.m.1	Clean filters	Dishwashing machine	
Broiler	Uhen necessary	Empty drip pan, wipe down	Container for grease, clean cloth	
	After each use	Clean grid tray, inside, outside, top	See cleaning procedure for each broiler	

MATERIALS FOR CLEANING

Use detergents and sanitizers only according to the manufacturers' label instructions. Contact Preventive Medicine Services for additional information on sanitizer use and approval.

NEVER USE PHENOLIC COMPOUNDS FOR SANITIZING FOOD-CONTACT SURFACES!

Clean It Correctly . . .

It is preferable to use single-use paper towels or disposable cloths to wipe and clean equipment and surfaces of a food-service establishment.

If you use reuseable wiping cloths in your food-service establishment, the following is essential:

WIPING FOOD SPILLS ON TABLEWARE
(Such as plates or bowls being served to the customer): Keep these cloths clean and dry, and use them for no other purpose.

WIPING FOOD SPILLS ON KITCHENWARE AND FOOD-CONTACT SURFACES OF EQUIPMENT
Clean, rinse, and store these cloths in a clean sanitizing solution.*

CLEANING ***NONFOOD-CONTACT SURFACES***
(Such as counters, dining table tops, and shelves): Keep these cloths clean, rinsed and stored in a clean sanitizing solution and use them for no other purpose.

Other **Cleaning Restrictions Apply . . .**

- Do not use sponges and sponge-type cloths.
- Do not use steel wool for cleaning food-contact surfaces.

* One tablespoon of household type chlorine bleach per 2 gallons of warm water.

DISINFECTING AND SANITIZING WITH HOUSEHOLD TYPE CHLORINE BLEACH

It's strong stuff . . .

Household type chlorine bleach (HTCB) is a powerful germicide composed of 5.259; sodium hypochlorite solution containing approximately 5% available chlorine by weight. Commercial brands of HTCB include CloroxTM and PurexTM. HTCB is highly effective for laundering and household disinfecting. HTCB is also widely used in sanitizing poultry and livestock houses and equipment, dairies, creameries, restaurants and taverns, and in purifying water, and in disinfecting water for swimming and wading pools.

Precautions for Application . . .

To use HTCB safely and effectively, comply with the following:

* Do not allow undiluted HTCB to contact any fabric. (Should this occur, rinse fabric immediately with clean, cold water.)

* Do not use HTCB on steel, aluminum, silver, galvanized metal, or chipped enamel. If HTCB is applied to metals, allow it to stand no more than 5 minutes and rinse metal thoroughly with clear water. Contact for longer periods may cause slight discoloration and eventual corrosion of the metal.

The **Sanitizing Scheme . . .**

The concentration of the HTCB solution depends on the item sanitized. After scrubbing thoroughly with detergent and rinsing with clear water, follow these procedures for sanitizing with HTCB --

FOR "IN PLACE" SURFACES:

* Apply a fresh sanitizing solution of 1 tablespoon of HTCB per 2 gallons of warm water.

* Remove excess sanitizing solution.

* Air dry.

FOR DISHES, GLASSWARE, AND UTENSILS:

* Prepare a fresh solution of 1 tablespoon of HTCB per 4 gallons of warm water.

* Dip item in solution for 1 minute.

* Allow items to drain and air dry.

FOR CLEANING EQUIPMENT
After washing brushes, mops, and brooms --

* Prepare a solution of 3/4 cup of HTCB and 1 gallon of warm water.

* Soak items in solution for 1 minute.

* Rinse with clear water.

• Hang with the head down on a rack and allow to air dry.

-FOR FLOORS
Mix 3/4 cup of HTCB per gallon of water, and mop floor. Do not use HTCB solution on cork flooring.

ICE MACHINES: MAINTENANCE, CLEANING, AND DISINFECTING

Keep off *the* ice . . .

Perform the following procedure monthly:

* Disconnect the ice machine, empty the bin, and allow it to warm up.

* Clean all internal surfaces and any removable parts which contact the ice with a soap or detergent solution.

* Brush a warm deliming solution* on all ice-contact surfaces with a nylon bristled brush. Clean the holes in the water control device completely to allow the even flow of water over the freezing board.

* Rinse thoroughly, inspect the flow line and assemble the ice machine for operation.

* Check mechanical operation and arrange for repairs, if necessary.

* Check for leaks and the possibility of contaminants dripping into the bin.

* Check manufacturer's recommendations and directions for sanitizing to determine if any additional service is required.

* Flush the ice bin with potable tap water. Sanitize** the internal surfaces, allow it to dry, and return the machine to service.

• Ensure the personal protective equipment noted on the deliming label is available and worn.

** 1 tablespoon of household-type chlorine bleach (such as Clorox, Purex) in 4 gallons of water provides a starting solution of approximately 50 ppm available chlorine.

Conditions for garbage containers . . .

Even the proper management of indoor and outdoor garbage and rubbish is essential in maintaining a sanitary food-service establishment. The following tips will help you in this endeavor:

* Keep outdoor containers covered.

* Keep garbage containers covered in food preparation and utensil washing areas when the facility is not operating.

* Fill garbage containers not more than 4 inches from the top to avoid spillage.

* Wrap garbage in paper, or place garbage in plastic bags to prevent leakage.

* Remove garbage from food preparation areas as soon as possible.

* Dispose of garbage as often as possible (at least twice weekly) to prevent the formation of odor and the attraction of pests.

* Keep garbage storage areas clean.

Requirements for . . .

The Garbage Storage Area

* Indoor and outdoor garbage storage areas should be large enough to accommodate the amount of garbage that will accumulate.

The Garbage Container

* Garbage and refuse containers, including outdoor dumpsters and compactor systems should be --

> Nonabsorbent

> Leak-proof

> Easily cleanable

> Insect and rodent-proof (that is, contain tight-fitting lids, doors, or covers)

* Outdoor containers designed with drains must have the drain plugs in place at all times (except during cleaning).

Cleaning Garbage Containers . . .

When cleaning garbage containers at your food-service establishment, remember the following:

* Clean indoor and outdoor containers frequently to prevent insect and rodent problems.

* Clean both the inside and outside surfaces of the containers thoroughly.

* Dispose liquid waste from the container-cleaning operation through a sanitary sewer.

CONTROLLING FLIES

Don't serve food to flies . . .

All entrances to the food-service establishment must be protected from flying insects. The following are means of protection:

* Doors that are tight-fitting and self-closing.

* Windows which close [tightly].

* Screening which measures no less than 16 mesh to the inch.

* Air curtains which are of adequate width and correctly installed (usually on the outside of the door) and provide sufficient air velocity to cover the entire door opening.

Positive air ventilation devices are also helpful in inhibiting flies, but they must be used in combination with other means of fly prevention. These devices force air out of storage areas, or out of the building to keep flies out.

You can also prevent files from entering the food-service establishment . . .

When the establishment receives supplies, ensure that doors and screens remain-open for only the shortest time possible!

What About Waste? . . .

Good sanitation practices are the key to a fly-free establishment. Garbage attracts pests and provides a breeding ground. Even if flies hatch elsewhere, accessible waste will invite them to your establishment.

About Electrocuting Devices for Flying Insect Control* . . .

You may use electric flying insect control devices, such as ultraviolet electrocuting fly grids, in a food-service establishment only if they meet specific criteria. Electric flying insect control devices must be --

* Approved by Underwriters Laboratories, or another independent testing laboratory.

* Used in conjunction with harborage elimination and proper sanitation.

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* Use the Armed Forces Pest Management Board Technical Information Memorandum No. 25, Devices for Electrocuting Flying Insects for guidance on procurement, placement, use, and maintenance.

* Constructed, operated and located to ensure insect body parts cannot contaminate food and food-contact surfaces.

* Located out of patron view and to preclude an electrical shock hazard to employees and patrons.

• Operated at night or when other light sources are not available.

If many flies are present in your establishment, you can assume that something inside or outside is attracting them and encouraging them to breed!

PREVENTING COCKROACH INFESTATION

Keep cockroaches under control . . .

Ridding an establishment of cockroaches means depriving these pests - and virtually all insects - of food, water, shelter, and access to the establishment. Protect your establishment from cockroaches with the following practices:

* Eliminate food and water sources by --

(1) Keeping the establishment clean.

Remember that cockroaches can and will eat practically anything. A mere crust of bread can support an entire cockroach population. Careful cleaning reduces the food supply for insects, destroys many insect eggs, and may reveal new infestations before they become serious. Some cleaning practices are outlined below --

> Clean hard-to-reach corners and crevices, and under and behind equipment.

> Clean areas where grease accumulates, such as around ranges and ventilation areas.

> Remove garbage promptly.

> Never leave food uncovered.

> Wipe up spills immediately.

> Do not allow puddles from cleaning, or other activities to remain on the floor.

> Do not store wet mops or brushes in the food preparation area.

> Pick up crumbs and other scraps of food as quickly as possible.

> Keep lavatories and toilet areas clean.

> Clean storage areas regularly.

> Repair all water and sewage leaks as quickly as possible.

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(2) Refrigerating food products.

Cockroaches and most insects become inactive at temperatures below 40 °F (4.4 °C). Therefore, refrigerating items such as cocoa, powdered milk, and nuts will preclude infestation.

(3) Rotating food products in a first-in first-out basis so insects will not have an opportunity to infest-and complete their life cycle.

* Deprive cockroaches of shelter and hiding places with the following practices:

> Ensure that cracks in floors and walls are filled with a suitable material, such as silicone caulking or putty. Fill larger holes with steel wool.

> Close off spaces where large pieces of equipment are fitted improperly to their bases, or to the floor.

> Store food and supplies away from the walls and above the floor.

> Do not allow crates, boards, empty boxes, bags, or other rubbish to accumulate in areas not designed for rubbish storage. Cardboard boxes provide optimal harborage because they retain moisture and are corrugated to facilitate egg laying.

> Ensure that storerooms and food preparation areas have adequate ventilation. (Cockroaches thrive in moist, poorly ventilated rooms.)

• Deprive cockroaches of access to the food-service -establishment.

Cockroaches are notorious hitchhikers. Cockroaches or their eggs may arrive at an establishment in boxes, bags and cartons of produce, meat, or other supplies. To preclude this situation from occurring in your establishment --

> Examine incoming cartons carefully and destroy any cockroaches which may be hiding in them.

> Examine incoming paper goods such as bags and napkins.

> Refuse any shipment of food products containing cockroaches (even one cockroach is one too many).

* If an infestation occurs, use an integrated approach as described --

> FIRST: Deny access (as noted previously).

> SECOND: Eliminate harborage by caulking cracks, crevices and holes.

> THIRD: Place bait stations as recommended by the pest controller and change them at the recommended intervals.

> FOURTH: If possible, place built-in controls such as boric acid or silica gel within the wall, floor and other voids.

Do not apply pesticide! Leave this to the certified pest controller. Pesticides should be applied only as the last resort for pest control.

PREVENTING RODENT INFESTATION

Wear out their welcome . . .

Without food, water, or shelter, a population of rats or mice cannot survive in a food-service establishment. To keep rodents out of your establishment --

Eliminate Rodent Entrance-Ways

> Gaps between the closed door and the floor, permit rodents to enter. However, if the building is sealed tightly, rodents will have *a* difficult time entering. Improperly fitting doors can be flashed with metal to solve this problem.

> Decaying masonry of building foundations allows rodents to burrow into the building. However, an L-shaped concrete wall which is 4 inches thick, extending 24 inches into the ground, and 12 inches outward from the building blocks the potential for rodent entrance.

> Basement windows, vents, and floor drains also provide rodents with an easy access into the building. Vents and basement windows should be protected with mesh screens. Basement and other floor drains should be covered with a perforated metal cap with a removable hinge.

Eliminate Rodent Hiding Places

Rodents build nests in places such as crowded storage rooms, near garbage, along walls, and under boards and crates. The following are measures you can take to help keep your establishment rodent-free:

> Keep garbage only in heavy-duty plastic or galvanized metal containers with tight-fitting lids.

> Place containers on racks at least 18 inches above the ground, or on concrete blocks.

> Place garbage cans or dumpsters as far from the building as conveniently possible.

> Place all dry food products in storerooms and on racks at least 6 inches above the floor.

> Keep food products away from the walls,

> Store boards, crates, and other containers on racks away from the walls.

Starve Rodents Out

Careful storage and proper cleaning will reduce a rodent's food sources. Remember these tips to eliminate rodent food sources in your establishment --

> Clean up spills immediately.

> Sweep floors regularly.

> Remove garbage from the premises as **soon** 'as possible.

> Once commercial food containers are opened, store contents in properly constructed, covered and closed containers.

ADMINISTRATIVE ITEMS FOR MANAGERS

Obviously, food-service managers oversee the entire food-service operation and the magnitude of these duties and responsibilities cannot be captured in a single fact sheet, However, this fact sheet highlights a few administrative items which are necessary to the food-service operation.

House **Rules** . . .

Establish "house rules" covering personal cleanliness, smoking and tobacco use, food handling, work attire, and prohibited actions and habits. These policies should be --

* Easily understandable.

* Readily available to employees (such as incorporated in employee manuals, posted in employee restrooms, over handwashing sinks, and on bulletin boards).

* Enforced uniformly.

Training . . .

Food-service supervisors must --

* Complete formal training to obtain the required food-service supervisor certification.

* Provide all food service employees with documented introductory and on-going training in food-service sanitation.

* Maintain a record of employee training.

Self-Inspection . . .

Food-service supervisors should initiate a regular program to self-inspect --

* The personal hygiene of food handlers and servers.

* Food handling practices.

* Receiving areas.

* Food storage areas.

* Food preparation areas and equipment.

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* Food holding equipment.

* Warewashing and storage areas.

- Lobby/dining rooms and serving areas.
- Customer restrooms.
- Employee facilities.
- Storage areas for supplies and equipment.
- Inside/outside garbage and trash storage and disposal areas.
- Utility rooms and areas.

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